

Calderbank 19-6-42

transmitted by other groups of antennas by treating them as interference. The contribution of the decoded signal to other received signal is then subtracted from those received signals. What results is a simple receiver structure that provides diversity and coding gain over uncoded systems with a given diversity gain. This combination of array processing at the receiver and coding techniques for multiple transmit antennas provides reliable and very high data rate communication over wireless channels. One advantage of the group interference suppression method over the Foschini architecture is that the number of receive antennas can be less than the number of transmit antennas.--;

Page 5, replace the paragraph beginning at line 7 with:

Enhanced performance is achieved by combining channel coding with the space-time coding principles disclosed in the '163 applications. More specifically, with K synchronized terminal units transmitting on N antennas to a base station having $M \geq K$ receive antennas, increased system capacity and improved performance are attained by using a concatenated coding scheme where the inner code is a space-time block code and the outer code is a conventional channel error correcting code. That is, information symbols are first encoded using a conventional channel code. The channel code encoded signal is then encoded using a space-time block code, and transmitted over N antennas. At the receiver, the inner space-time block code is used to suppress interference from the other co-channel terminals and soft decisions are made about the transmitted symbols. The channel decoding that follows makes the hard decisions about the transmitted symbols.;

Page 5, replace the paragraph beginning at line 19 with:--

Increased data rate is achieved by, effectively, splitting the incoming data rate into multiple channels, and each channel is transmitted over its own terminal. Viewed another way, information symbols from a transmitting terminal is split into L parallel streams. Stream l is encoded using a channel code with rate R_l and then coded with a space-time block encoder with N transmitting antennas. Advantageously, the coding rates are chosen such that $R_1 < R_2 < \dots < R_L$.--;

Page 14, replace the paragraph beginning at line 8 with:--

FIG. 2 presents an arrangement for increasing the data rate or throughput in wireless systems. In FIG. 2, the information to be transmitted is demultiplexed in